AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

On page 1 of the Patent Claims, please amend line 1 as follows:

~~Patent Claims~~ CLAIMS

On page 1, after line 1, please insert the following:

What is claimed is:

Claims 1 – 11 (Cancelled).

Please add new claims 12 - 27 as follows:

12. (New) A bipolar plate for fuel cells comprising:

a foil having a plurality of microstructures, said foil being at least partially conductive;

at least one channel structure formed between at least two of said microstructures;

whereby said channel structure selectively conveys a reactant; and

whereby said plurality of microstructures are integrated into said foil, enhancing rigidity of said foil.

13. (New) The bipolar plate as recited in claim 12, wherein each of said plurality of microstructures is generally shaped as a polygon.

14. (New) The bipolar plate as recited in claim 12, wherein said plurality of microstructures cover a surface of said foil.

15. (New) The bipolar plate as recited in claim 12, wherein said plurality of microstructures are formed by one of an embossing and an etching process.

16. (New) The bipolar plate as recited in claim 12, wherein said at least one channel structure is formed by one of an embossing and an etching process.

17. (New) The bipolar plate as recited in claim 12, wherein each of said plurality of microstructures has a length generally between 1 micrometer (μm) and 500 micrometers (μm).

18. (New) The bipolar plate as recited in claim 12, wherein said foil has a thickness of less than about 0.5 millimeters (mm).

19. (New) The bipolar plate as recited in claim 12, wherein said channel structure forms a channel base, said channel base being shaped as a trough-like depression for draining away condensed reaction products.

20. (New) The bipolar plate as recited in claim 12, wherein each of said microstructures including a recessed center forms a trough-like depression.

21. (New) The bipolar plate as recited in claim 12, wherein said foil is hydrophobic.

22. (New) The bipolar plate as recited in claim 12, wherein each of said microstructures includes at least one substructure.

23. (New) The bipolar plate as recited in claim 22, wherein said substructure has a length generally between 1 micrometer (μm) and 50 micrometers (μm).

23. (New) The bipolar plate as recited in claim 22, wherein said substructure includes a coating.

24. (New) A method of forming a bipolar plate comprising the steps of:
forming a foil by one of an embossing and an etching process;
shaping a channel structure onto said foil;
integrating a plurality of microstructures in the form of polygons onto said foil;
conveying a reactant by said channel structure; and
enhancing rigidity of said foil by including said plurality of microstructures.

25. (New) A bipolar plate for fuel cells comprising:
a foil having a plurality of microstructures formed onto a surface of said foil;
at least one channel structure formed between said microstructures;
whereby said channel structure selectively conveys a reactant to a proximate fuel cell; and
whereby said plurality of microstructures enhance rigidity of said foil.

26. (New) The bipolar plate as recited in claim 25, wherein each of said plurality of microstructures is generally shaped as a polygon.

27. (New) The bipolar plate as recited in claim 25, wherein said at least one channel structure is formed by one of an embossing and an etching process.

AMENDMENTS TO THE ABSTRACT

Please amend the Abstract as follows:

~~The present invention relates to a bipolar plate for fuel cells, comprising at least a shaped, at least partially electrically conductive foil (1), the bipolar plate having a channel structure (5) formed by the shaping of the foil (1), to convey reactants to electrodes of adjacent fuel cells and to carry away reaction products, and a microstructure (4) is integrated into the foil (1) to increase the rigidity of the foil (1). The invention also relates to a method for manufacturing corresponding bipolar plates.~~

~~(Fig. 1)~~

A bipolar plate for fuel cells comprises a foil having a plurality of microstructures. The foil is at least partially conductive. At least one channel structure is formed between the microstructures whereby the channel structure conveys a reactant to an electrode of a proximate fuel cell and whereby the microstructures are integrated into the foil, increasing its rigidity.